Role of Innovative Women in Computer Science Facilitated in the Upliftment of A Digital Society

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Abstract

The Women played a very significant role in the field of technology and development. Mainly they contributed in the growth and development of the most essential components of modern IT in the times of yore. A small percent of women achieved and made IT blooming by the creation of the first computer program. Some women also path themselves in inventing computing methods and devices, like the compilers, advancing human space exploration, developing programs that influence how today's computers work, creating programs dedicated to studying technology's impact on social and ethical issues, promoting diversity throughout IT workplaces. This paper dives deeper into the contributions of five women have made in computer science and technology and also it focus on the future women in computer science.

Introduction

The Women are the magnificent creation of god, a multi faceted persona with the power of compassion, adjustability, truthfulness and patience. She is companion of man, gifted with equal mental faculty, a shield and contributor, the personification of love our women have a immense part to play in the growth of our country. For nothing was it said, "The hand that rocks the cradle rules the world". In the apron string of women is hidden the ground-breaking liveliness, which can institute ecstasy on this earth.

Mahatma Gandhi, Pandit Nehru and Dr. Rajendra Prasad began to believe genuinely about the pressing require of women's liberation. They realized that so long as women of the country were not uplifted and contracted equal status with men in all walks of life political, social, economic, domestic and educational, India could neither progress nor make any significant advance in any field.

Now with the support of co-education, women have radiated off the age old lowliness intricate and are marching side by side with men in every walk of life. Women are really proving to be academically enhanced and in a social context further energetic. In the results of competitive examinations in all India civil services and Indian universities a cheerful revelation is to memorandum that women incarcerate most of the merit seats. They are also attentive of the fast shifting social background and they are making continuous pains to scale the influential of social development by impression of their passion and enthusiasm. They are causative expansive towards the social alteration and in construction of our nation.

History of Women

Women in the field of computing technology have structured and shaped the evolution of data and information technology. They were the best innovators among the first programmers in the early 20th century who contributed substantially to the industry. "As technology and practices altered, the role of women as a programmer has changed and the recorded history of the field has downplayed their achievements" [1].

In the 18th century, a woman encompasses residential methodical calculations plus Nicole's prophecy of Halley's Comet and Maria's working out of the gesture of the planet Venus. The primary and foremost algorithm deliberated on the road to the field of computer was designed and was executed by Lady Ada Lovelace who breaks new ground in the computer field. Next a legend named Grace Hopper proposed the concept of compilers for a programming language. In the 19th and the earlier stages of 20th century up to the human race of the Second World War the impression of programming was principally geared up by women. After some years there was gender discrimination not only in computing technology but also in all other fields where women shined. On the other hand many women fought against that discrimination and contributed themselves in the upliftment of technological and industrial areas.

During the twenty first century they acquired their role as leaders in wide range of technological vicinity. "Meg Whitman is an American business executive, political activist, and philanthropist, president and chief executive officer of Hewlett Packard Enterprise"[2]. "Marissa Mayer is an American information technology administrative, co-founder of Lumi Labs. She is the president & CEO of Yahoo, key spokesperson of Google" [3].

Ground Breaking Women
The First Computer Programmer

Lady Ada Lovelace was born in London in the year 1815. Ada Lovelace was an English lyricist. Ada was the only child of Lord George. Lady Byron immersed Ada in mathematics as per her father's wish as he was fearful. Lovelace slowly concentrated in mathematics and out of her own interest she conceptualized a flying machine when she was twelve years. The "father of the computer" Charles Babbage was her guru. When she was seventeen, Lovelace met the inventor and mathematician Charles Babbage. Babbage demonstrated a mock-up segment of his variation which had a massive calculating machine. Lady Ada was a resourceful creative thinker who predicted that computers could do more in a minute other than crunching numbers. Lovelace anticipated the multi functionality of the modern computers and her ideas in relation to computations were so distantly in advance of their time to facilitate it nearly a century to catch up. She had a passion and souvenir for mathematics from her young age. She is credited with being the world's first computer programmer, as she drafted plans for how a machine called the Analytical Engine could perform computations.

Lovelace detailed applications for the Analytical Engine that relate to how computers are used today. "Lovelace died at the age of 36 in 1852. In 1980, the US Department of Defence named a computer language after her and Ada Lovelace Day is celebrated every October in recognition of her groundbreaking contribution to computer technology" [4]. Till now Lovelace is remembered annually on Ada Lovelace Day, held on the second Tuesday of October. The international day of recognition celebrates women in science, technology, engineering, and math (STEM).

The First Compiler Initiator

American Grace Hopper was born in the year 1906. She grossed her post doctoral degree for Maths at Yale University between 1862 and 1932 where only thousand two hundreds degrees were

awarded by that time. She coined the terms 'bug – debug'. She was an admiral in the US Navy and also was one of the first computer programmers for the Harvard Mark I computer [5]. She was called as 'Amazing Grace' for her service in the Navy. In the year 1944 she created a Manual of Operations for the Automatic Sequence-Controlled Calculator for the computer which was nearly five hundred pages. Hopper is moreover the artificer of the compiler that converts the intermediate program into the language that will be understood by the target laptop. This innovation predisposed diverse computing expansions like code progress, subroutines and formula paraphrases. She is also a very great mentor who gave sparks in many minds that suffered from worries. Hopper is still in commitment to our memory on the day of largest gathering of women technologist which is annually arranged in the name of 'Grace Hopper Merriment'. Cray X6 Hopper Supercomputer at NERSC was named after her.

Space Human Computer Originator

Katherine Johnson was another computer and space pioneer born in White Sulphur Springs, West Virginia on August 26, 1918. She joins up unswervingly into the second grade discipline and by age ten; she geared up for high school. Katherine wished to prolong her edification still more. She was a college graduate at 18. In the year of 1939 she got married to Globe. Then the recently married Johnson afterwards well-known as Katherine Goble signed up as a graduate student at West Virginia University later than was selected as one of the first three black students integrated into West Virginia's graduate schools [6]. Johnson's curiosity for figures authorized her to pick and choose up the rapidity all the means and all the way throughout her edification. She was a woman who wanted to shine and so she applied for job at NASA. She got rejected for the first time and till then she did not lose hope again she tried. In the mid of 1950's she joined NASA and she proved herself able by helping in sending the first men to moon. She also has written a book on 'space travel'. Katherine received recognition on a national scale. President Barack Obama awarded her the presidential Medal of Freedom for her pioneering work in the fields of STEM (science, technology, engineering, and mathematics) at her 100th birthday. She eventually received her doctorate too. After 75 years she received an honorary doctorate degree from West Virginia University. The story of Katherine and other women mathematicians of colour was portrayed in the 2016 film 'Hidden Figures', based on the book of the same name by Margot Lee Shetterly.

First Female Doctorate in Computer Science

The first woman to obtain a doctoral degree in Computer Science was a nun. Mary Kenneth Keller entered into the 'Sister of Charity' in 1932, confessing her declarations in 1940. Keller inward her B.S., M.S. Mathematics from DePaul University in Chicago and for a short time she premeditated at Dartmouth, violating the 'men-only' tenet. Keller participated in all activities and she invoked a worth mentioning role sprouting a key computer language named BASIC (Beginner's All-Purpose Symbolic Instruction Code). Her involvement completed mainframe use to a large extent, more available to a broader segment of the residents. Keller revisited to the Midwest & in 1965, inward bound her PhD commencing at the institution of higher education of Wisconsin [7]. She also got the credit that she was the first female in computer science area to get her doctoral degree.

Freelance Programmer

Stephanie "Steve" Shirley was born in 1933 in Germany [8]. She was certified with advancing the important function of women in IT and computer programming through the launch of her software firm Freelance Programmers which is now part of Sopra Steria Group. Shirley was born to a Jewish father and a non-Jewish Viennese mother[9]. In July 1939, Shirley arrived at the age of five together with her sister Renate, to Britain as a kinder transport child refugee. The firm, founded

in 1962 in England, initially employed only women. Shirley's bio on her TED Talk page, which has had nearly 2 million views, cites one of the firm's most notable projects: the development of the black box flight recorder for the supersonic Concorde, a British passenger airline. Recently, Shirley focuses on philanthropy, including many projects related to IT, through 'The Shirley Foundation'. She is also a public speaker and founded the Oxford Internet Institute at the University of Oxford, dedicated to studying how the internet affects social, economic, legal, and ethical issues.

Conclusion

Women's roles in Information Technology and computer science prolong to prosper and flourish in all sectors today. Women are also stepping their foot in inventing innovative technological equipment's, recuperating programming and provided the communal with automated computerized tools that can help us escort so easy lives. Women in tech these days encompass highly developed regime IT systems, fashioned extraordinary possessions and formulate notebook PC improvement that facilitate a 'work from home' and bring up their own gadget atmosphere.

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